

of classifying one of the defects [the defect] as being in one of an arbitrary number of subclasses of at least one of the invariant core classes, the subclasses being of arbitrarily defined defects.

41. (Amended) The apparatus of claim 37, further comprising of processor for classifying the defect as being in one of arbitrary number of subclasses of at least one of the invariant core classes, the subclasses being of arbitrarily defined defects.

46. (Amended) A method of automatically classifying a defect on the surface of an article; which method comprises:

imaging the surface with a scanning electron microscope and an optical imager; and

classifying the defect as being in one of a predetermined number of invariant core classes of defects.

Please add the following new claims:

① - -61. A method of automatically classifying defects on the surface of an article, which method comprises at least:

imaging the surface; and

classifying each of the defects as being in one of a predetermined number of invariant core classes of defects.

② 62. A computer-readable medium bearing instructions for automatically classifying defects on the surface of an article, said instructions, when executed, being arranged to cause one or more processors to perform the steps of:

CLEAN COPY OF NEW AND AMENDED CLAIMS

Claims 6, 23, 41, and 46 now read as follows:

B1 6. The method according to claim 1, comprising further classifying one of the defects as being in one of an arbitrary number of variant subclasses of at least one of the invariant core classes.

B2 23. The computer-readable medium according to claim 18, wherein the instructions, when executed, are arranged to cause the one or more processors to perform the step of classifying one of the defects as being in one of an arbitrary number of subclasses of at least one of the invariant core classes, the subclasses being of arbitrarily defined defects.

B3 41. The apparatus of claim 37, further comprising of processor for classifying the defect as being in one of arbitrary number of subclasses of at least one of the invariant core classes, the subclasses being of arbitrarily defined defects.

B4 46. A method of automatically classifying a defect on the surface of an article; which method comprises:

imaging the surface with a scanning electron microscope and an optical imager; and

classifying the defect as being in one of a predetermined number of invariant core classes of defects.

New claims 61 through 63 read as follows:

61. A method of automatically classifying defects on the surface of an article, which method comprises at least:

imaging the surface; and
classifying each of the defects as being in one of a predetermined number of invariant core classes of defects.

62. A computer-readable medium bearing instructions for automatically classifying defects on the surface of an article, said instructions, when executed, being arranged to cause one or more processors to perform the steps of:

imaging the surface; and
classifying each of the defects as being in one of a predetermined number of invariant core classes of defects.

63. An apparatus for classifying defects on the surface of an article, comprising:
an imager to produce an image of the defect and a reference image;
a storage device to store the defect image and the reference image;
a comparator to compare the defect image and the reference image; and
a processor to classify the defect as being in one of a predetermined number of invariant core classes of defects.